

What is claimed is:

1. A pharmaceutical composition comprising a stress protein complex and a physiologically acceptable carrier, wherein the stress protein complex comprises an hsp110 or grp170 polypeptide and an immunogenic polypeptide.
2. The pharmaceutical composition of claim 1, wherein the hsp110 or grp170 polypeptide is complexed with the immunogenic polypeptide.
3. The pharmaceutical composition of claim 2, wherein the hsp110 or grp170 polypeptide is complexed with the immunogenic polypeptide by non-covalent interaction.
4. The pharmaceutical composition of claim 2, wherein the complex comprises a fusion protein.
5. The pharmaceutical composition of claim 1, wherein the complex is derived from a tumor.
6. The pharmaceutical composition of claim 1, wherein the complex is derived from a cell infected with an infectious agent.
7. The pharmaceutical composition of claim 1, wherein the stress protein complex further comprises a polypeptide selected from the group consisting of members of the hsp70, hsp90, grp78 and grp94 stress protein families.
8. The pharmaceutical composition of claim 1, wherein the stress protein complex comprises hsp110 complexed with hsp70 and hsp25.
9. A pharmaceutical composition comprising a first polynucleotide encoding an hsp110 or a grp170 polypeptide and a second polynucleotide encoding an immunogenic polypeptide.
10. The pharmaceutical composition of claim 9, wherein the first polynucleotide is linked to the second polynucleotide.

11. A pharmaceutical composition comprising an antigen presenting cell (APC) modified to present an hsp110 or grp170 polypeptide and an immunogenic polypeptide.

12. The pharmaceutical composition of claim 11, wherein the APC is a dendritic cell or a macrophage.

5 13. The pharmaceutical composition of claim 11, wherein the APC is modified by peptide loading.

14. The pharmaceutical composition of claim 11, wherein the APC is modified by transfection with a first polynucleotide encoding an hsp110 or a grp170 polypeptide and a second polynucleotide encoding an immunogenic polypeptide.

10 15. The pharmaceutical composition of claim 14, wherein the first polynucleotide is linked to the second polynucleotide.

16. The pharmaceutical composition of claim 1, wherein the immunogenic polypeptide is associated with a cancer.

17. The pharmaceutical composition of claim 16, wherein the immunogenic polypeptide comprises a her-2/neu peptide.

18. The pharmaceutical composition of claim 17, wherein the her-2/neu peptide is derived from the intracellular domain of her-2/neu.

19. The pharmaceutical composition of claim 1, wherein the immunogenic polypeptide is associated with an infectious disease.

20 20. The pharmaceutical composition of claim 19, wherein the immunogenic polypeptide comprises a *M. tuberculosis* antigen.

21. The pharmaceutical composition of claim 20, wherein the *M. tuberculosis* antigen is Mtb8.4 or Mtb39.

mb
AH
22. The pharmaceutical composition of claim 1, wherein the complex has been heated so as to enhance binding of the hsp110 or grp170 polypeptide to the immunogenic polypeptide.

mb
C17 23. The pharmaceutical composition of claim 1, further comprising an adjuvant.

5 24. A method for producing T cells directed against a tumor cell comprising contacting a T cell with an antigen presenting cell (APC), wherein the APC is modified by contact with an hsp110 or grp170 polypeptide and an immunogenic polypeptide associated with the tumor cell.

25. The method of claim 24, wherein the T cell is a CD4+ or a CD8+ T cell.

10 26. A T cell produced by the method of claim 24.

27. A method for killing a tumor cell, comprising contacting the tumor cell with the T cell of claim 26.

15 28. A method for producing T cells directed against a *M. tuberculosis*-infected cell comprising contacting a T cell with an antigen presenting cell (APC), wherein the APC is modified by contact with an hsp110 or grp170 polypeptide and an immunogenic polypeptide associated with the *M. tuberculosis*-infected cell.

29. The method of claim 28, wherein the T cell is a CD4+ or a CD8+ T cell.

30. A T cell produced by the method of claim 28.

20 31. A method for killing a *M. tuberculosis*-infected cell, comprising contacting the cell with the T cell of claim 30.

32. A method for inhibiting *M. tuberculosis*-infection in a subject, comprising administering to the subject an effective amount of the pharmaceutical composition of claim 20, and thereby inhibiting *M. tuberculosis*-infection in the subject.

mb
as
33. A method for inhibiting tumor growth in a subject, comprising administering to the subject an effective amount of the pharmaceutical composition of claim 16, and thereby inhibiting tumor growth in the subject.

5 34. A method for inhibiting the development of a cancer in a subject, comprising administering to the subject an effective amount of the pharmaceutical composition of claim 16, and thereby inhibiting the development of a cancer in the subject.

35. A method for inhibiting the development of a cancer in a patient, comprising administering to a patient an effective amount of a pharmaceutical composition of claim 11, and thereby inhibiting the development of a cancer in the patient.

10 36. A method for removing tumor cells from a biological sample, comprising contacting a biological sample with the T cell of claim 26.

37. The method of claim 36, wherein the biological sample is blood or a fraction thereof.

38. A method for inhibiting tumor growth in a subject, comprising the steps of:

15 (a) incubating CD4+ and/or CD8+ T cells isolated from the subject with an antigen presenting cell (APC), wherein the APC is modified to present an hsp110 or grp170 polypeptide and an immunogenic polypeptide associated with the tumor cell such that T cells proliferate; and

(b) administering to the subject an effective amount of the proliferated T cells, and thereby inhibiting tumor growth in the subject.

20 39. A method for inhibiting tumor growth in a subject, comprising the steps of:

(a) incubating CD4+ and/or CD8+ T cells isolated from the subject with an antigen presenting cell (APC), wherein the APC is modified to present an hsp110 or grp170 polypeptide and an immunogenic polypeptide associated with the tumor cell such that T cells proliferate; and

25 (b) cloning at least one proliferated cell; and

- (c) administering to the patient an effective amount of the cloned T cells, and thereby inhibiting tumor growth in the subject.

5 40. A method of enhancing an immune response to an antigen administered to a subject comprising administering an hsp110 or grp170 polypeptide and the antigen to the subject.

41. The method of claim 40, wherein the hsp110 or grp170 polypeptide is administered within one hour of administering the antigen.

42. The method of claim 40, wherein the hsp110 or grp170 polypeptide is administered approximately simultaneously with the antigen.

10 43. A method of enhancing the immunogenicity of a stress protein complex comprising heating the stress protein complex, wherein the stress protein complex comprises a heat-inducible stress polypeptide and an immunogenic polypeptide.

44. The method of claim 43, wherein the heating comprises heating the stress protein complex to a temperature of about 39-40 °C.

15 45. The method of claim 43, wherein the stress polypeptide comprises hsp110 or hsp70.

add
AU